

Submission Deadline—January 15, 2014



Advances in Thermoelectric Materials II

In August of 2011, the *Journal of Materials Research (JMR)* published a Focus Issue entitled “*JMR Focus Issue: Advances in Thermoelectric Materials.*” Since that issue was published, there have been significant advances in thermoelectric materials research, such as a surge in thermoelectric nanocomposites, mesoscale systems, and new naturally occurring materials with favorable thermoelectric performance. Thermoelectric (TE) materials allow for direct thermal-to-electrical energy conversion, as well as conversely performing as solid-state refrigeration materials. This *JMR* Focus Issue will highlight a combination of new theoretical ideas, new materials and new device concepts, various processing and synthesis methods, along with technologies and applications related to direct thermal-to-electric energy conversion. Studies at various length scales have proved to be crucial to separate the electric and thermal transport in these materials. Theoretical studies of transport properties, band structure, and crystal chemistry of materials, thermodynamic analysis and energy transfer will also be included. Experimental efforts will include new capabilities in solid-state synthesis, new bulk materials, thin films, superlattices and nanostructured materials along with new developments in material property and device performance measurements and metrology techniques.

Contributed articles are sought in the following areas:

- ◆ Oxides and other materials with strong electron correlation
- ◆ Theoretical guidance to high efficiency thermoelectric (TE) energy conversion
- ◆ High efficiency bulk TE materials
- ◆ Low dimensional and nanoscale thermoelectric materials
- ◆ Thermoelectrics related to harvesting solar energy
- ◆ Synthetic strategies for preparing novel materials and compounds
- ◆ Naturally occurring TE materials
- ◆ Thermoelectric nanocomposite materials
- ◆ Mechanical properties of various TE materials
- ◆ Materials property measurement and new metrology techniques
- ◆ Device performance requirements for future applications
- ◆ Applications and new directions in thermal energy conversion
- ◆ Mechanical properties of various TE materials

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MANUSCRIPT SUBMISSION

To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented. The manuscripts must be submitted via the *JMR* electronic submission system by January 15, 2014. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. **Submission instructions may be found at www.mrs.org/jmr-instructions.** Please select “Focus Issue: *Advances in Thermoelectric Materials II*” as the manuscript type. **Note our manuscript submission minimum length of 6000 words.** All manuscripts will be reviewed in a normal but expedited fashion. Papers submitted by the deadline and subsequently accepted will be published in the Focus Issue. Other manuscripts that are acceptable but cannot be included in the issue will be scheduled for publication in a subsequent issue of *JMR*.

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The Society's interdisciplinary approach to the exchange of technical information is qualitatively different from that provided by single-discipline professional societies because it promotes technical exchange across the various fields of science affecting materials development. MRS sponsors three major international annual meetings encompassing many topical symposia, as well as numerous single-topic scientific meetings each year. It recognizes professional and technical excellence, conducts tutorials, and fosters technical exchange in various local geographical regions through Section activities and Student Chapters on university campuses.

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